



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,534	03/25/2004	Wei-Chung Shih	10113971	6151
34283	7590	07/14/2005		
QUINTERO LAW OFFICE 1617 BROADWAY, 3RD FLOOR SANTA MONICA, CA 90404			EXAMINER SEVER, ANDREW T	
			ART UNIT	PAPER NUMBER

2851

DATE MAILED: 07/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/809,534

Applicant(s)

SHIH ET AL.

Examiner

Andrew T. Sever

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 13, 14 and 18 is/are rejected.
- 7) ☒ Claim(s) 10-12 and 15-17 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 4, 5, 14, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Marshall et al. (US 6,406,148.)

Marshall teaches in figure 2 a projector for projecting an image to a projection plate (230), comprising:

A first digital micro-mirror device (220), with a first micro-mirror disposed thereon;

A second digital micro-mirror device (226), comprising a plurality of second micro-mirrors disposed thereon (see column 1 which among other things teaches how DMDs (digital micro-mirror devices) operate); and

A projection light source (202), emitting a projection beam (206, 212, and 218) toward the first digital micro-mirror device;

Wherein the first digital micro-mirror device reflects the projection beam from the projection light source to the second digital micro-mirror device, (224) the first micro-mirror is rotated with respect to a vertical axis to adjust a horizontal

Art Unit: 2851

position where the projection beam is projected on the second digital micro-mirror device, the second digital micro-mirror (226) device reflects the projection beam from the first digital micro-mirror device to the projection plate, and the second micro-mirrors are rotated with respect to an horizontal axis to adjust a vertical position where the projection beam is projected on the projection plate (second micro-mirror device 226 modulates the light in across a 2 dimensional area, however this would include at least a vertical position, while shutters 220 scan the light beams across the second micro-mirror device in at least horizontal direction).

With regards to applicant's claim 2:

The first micro-mirror devices are DMDs, which are microchips.

With regards to applicant's claim 4:

The second digital micro-mirror device is on a second chip with micro-mirrors disposed thereon.

With regards to applicant's claim 5:

The mirrors are arranged in both a horizontal and vertical axis (See figures 5-8 which show the first micro-mirror device, however the second operates in the same manner.)

Art Unit: 2851

With regards to applicant's claim 14:

See figure 1 which teaches a controller 114.

With regards to applicant's claim 18:

All projectors are portable electronic apparatus (you can pick one up and move it even if this is rather tedious).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 2851

5. Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall as applied to claims 1, 2, 4, 5, 14, and 18 above, and further in view of Mehrl (US 2004/0169910.)

As described in more detail above Marshall teaches a projector having first and second digital micro-mirror devices, however Marshall does not teach that the micro-mirrors on said micro-mirror devices have a rotation range of 10 degrees. DMDs, however typically operate with a rotation range of 10 degrees as taught in paragraph 23; this is the normal functioning of DMDs and accordingly it would have been obvious to one of ordinary skill in the art to have the mirrors of the micro-mirror device of Marshall rotate 10 degrees as taught by Mehrl.

With regards to claims 3 and 6:

Both device of Marshall are DMDs and accordingly they rotate 10 degrees as made obvious above by Mehrl.

6. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall as applied to claims 1, 2, 4, 5, 14, and 18 above, and further in view of Roddy et al. (US 6,882,356.)

As described in more detail above Marshall teaches a projector having first and second digital micro-mirror devices, however Marshall does not teach that the light source is a laser. Roddy teaches in figure 10 a projector which utilizes two

Art Unit: 2851

lasers (60 and 61) which are specified to be LEDs in column 9 lines 52, however in column 9 lines 5-20, Roddy teaches that laser LEDs can use up to 10 time the rated DC current to produce a brighter or higher flux light beam then regular LEDs and as is well known LEDs utilize significantly less power then prior art light sources such as arc lamps. Accordingly it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilizes laser LEDs in the projector of Marshall as taught by Roddy, since laser LEDs utilize significantly less power then prior art light sources while being able to produce a bright image.

With regards to applicant's claim 8:

Roddy teaches in column 7 lines 32-56 that the wattage is between 0.3 and 1.5 Watts, which overlaps the claimed range.

7. Claims 9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall as applied to claims 1, 2, 4, 5, 14, and 18 above, and further in view of Slobodin (US 2005/0062944).

As described in more detail above Marshall teaches a projector having a light source and first and second micro-mirror devices. Marshall does not teach what the light source comprises of. Slobodin teaches a prior art light source in figure 1 comprising of 3 light sources (102, 104, and 106) that are combined by a prism (108) before being transmitted to at least one light modulator. Slobodin teaches in

Art Unit: 2851

paragraphs 1-5 that such a light source has advantages over even earlier prior art light sources in that they use lasers diodes or LEDs which are cooler, do not require warm up periods, and have other advantages. Accordingly since as taught by Slobodin such a design of light sources is well known and has certain advantages over prior art light sources (such as a white arc lamp), it would have been obvious to one of ordinary skill in the art to use such a system in the projector of Marshall.

With regards to applicant's claim 13:

The three light sources are red, green, and blue.

Allowable Subject Matter

8. Claims 10-12 and 15-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: Claims 10, 11, and 15-17 claim that the light source and other components are located on the second digital micro-mirror device. This was not found in the prior art. Prior art digital micro-mirror devices only had the micro-mirrors and controllers on them. With

Art Unit: 2851

regards to claim 12, as shown in Slobodin the lights are combined to form a white light prior to the modulating components of the system (first and second micro-mirror device.) Accordingly claims 10-12 would be allowable if written in independent form including all of the limitations of the base claims and intervening claims.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

US 6,863,401 to Penn teaches in figures 6, 7a, and 7b the use of a DMD for controlling what light reaches a particular modulator. This patent reads on several of the present applications claims and should be reviewed before making any amendments.

US 6,020,937 to Bardmesser teaches in figure 4 a projection apparatus with three light sources (32, 34, and 36) which are combined by a dichroic beam splitters (35 and 37) and then scanned by mirror devices 10 and 8.

US 6,779,893 to O'Connor et al. teaches in figure 2 a display device with a color switch and separate modulators.

US 2004/0012863 to Tzidon et al. teaches in figure 1a a projection apparatus with the light sources located next to the projection lens.

Art Unit: 2851

US 6,906,852 to Russell teaches in figure 1 a projector with a micro mirror device and a series of light sources.

US 5,689,321 to Kochi teaches in figure 1 a projector with three monochromatic light sources which are reflected to a micro-mirror device (7) by a micro-mirror device (4).

US 5,784,129 to Konuma et al. teaches in figure 1 a projector with modulators 5-7 and second modulators 3-4 and combining prism 11.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T. Sever whose telephone number is 571-272-2128. The examiner can normally be reached on 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2851

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AS



Alan A. Mathews
Primary Examiner